

FORMATION OF SILICON NITRIDE FILM

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Abstract

PURPOSE:To form a silicon nitride film which slightly shifts threshold voltage even at a relatively high temp. and is excellent in reliability by using gaseous SiH₄, NH₃ and N₂ as starting materials in specified flow rate ratios when a silicon nitride film is formed by plasma CVD.

CONSTITUTION:When a thin silicon nitride film as the insulating film of an electrical device is formed by CVDR with gaseous SiH₄, NH₃ and N₂ as process gases, the flow rate ratio of the gaseous NH₃ to the gaseous SiH₄ is regulated to 2-10 and that of the gaseous N₂ to the gaseous SiH₄ to 13-17. A thin silicon nitride film which does not considerably shift threshold voltage even at a relatively high temp. is stably formed.

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